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A YOUNG TURKEY VULTURE  
Photographed by Thos. G. Scott, July 2, 1936.

TURKEY VULTURES IN CENTRAL IOWA<sup>1</sup>

By THOS. G. SCOTT and ROBERT MOORMAN

Throughout the spring and summer of 1938 and 1939 and the spring of 1940, observations were made on Turkey Vultures (*Cathartes aura septentrionalis*) in the Des Moines River valley south of Boone, Iowa. These investigations were undertaken when it was noted that prey captured by red foxes was sometimes eaten by vultures. The relationship thus created has been recorded. The data here reported upon relate primarily to the vultures.

In 1938 the date of arrival of the vultures in the section was not noted. In 1939 and 1940 the first vultures were seen on April 2 and April 1, respectively. The first arrivals were few in number. More birds appeared from time to time, and the full complement was reached late in the month.

The dead branches of two red elm (*Ulmus fulva*) trees on the west bank of the Des Moines River at its junction with a small creek were the roosting places of the vultures, except on cold nights, when they took cover in the leafy foliage of trees on the opposite side of the river. As the birds were reluctant to leave their roost in the morning, seldom departing before 9 o'clock except when flushed, it was possible to make frequent counts of them. There were 12 adults in 1938, and 15 in 1939. In 1940 the largest number observed was 11. The birds did not appear at the roost in the dead elms every morning, but when they were there, no fewer than 5 were noted in any of the counts. An occasional vulture has been seen out over the prairie near Ames, about 15 miles from the Des Moines River. As the roost on the Des Moines River is probably the nearest one to Ames, it is possible that birds seen there are from this roost. When at such a distance from the roost late in the afternoon, they may have been prompted to remain away overnight.

The morning flight from the roost did not follow a definite route, the birds scattering in all directions. Vultures were seen at all times of day soaring at various heights, but there was a general gathering or concentration of soaring birds nearly every day between 3:30 and 5:30 p.m. These birds usually concluded their aerial program by going to roost.

On June 23, 1938, two young vultures were found in a cavity in a large sugar maple (*Acer saccharinum*) on a small flood plain one-eighth of a mile north of the roost and on the same side of the river. The trees at that point were predominantly black walnut (*Juglans nigra*), sugar maple, and red elm, and the stand was almost dense enough to form a closed canopy.

This same nest cavity was again used in 1939. In that year several observations were made of an adult incubating eggs, but at no time was the bird disturbed enough to cause it to leave the nest. The eggs hatched on June 1 or 2. The young disappeared from the nest on June 5, but there was no evidence of what had occurred. So far as observed there was no nesting in 1940, possibly because of shooting in the area.

Data gathered in 1938 indicated that the young were fed on schedule. With great regularity each morning and afternoon an adult bird made one trip to the tree cavity to feed the young. The adult usually alighted in a tall, dead black walnut tree near the nest and after a wait, presumably to learn if danger were near, would either fly away

<sup>1</sup>Journal Paper No. J-782 of the Iowa Agricultural Experiment Station, Ames, Iowa. Project No. 598. Iowa State College, Iowa State Conservation Commission, and American Wildlife Institute cooperating with the U. S. Fish and Wildlife Service.

or drop to a limb outside the cavity entrance and then enter. The longest wait on the lookout tree was about ten minutes and the shortest two minutes. The adult vulture always raised its wings high above its head at the entrance and then dropped within. The adult usually came out of the opening and flew away within five minutes after entering. On one occasion an adult entered the cavity at 9:20 a.m., the earliest visit to the nest observed. The bird did not reappear within the usual five minutes but remained inside, and at 10 a.m. a drizzling rain began to fall. The bird was still in the cavity when the observer left the blind, about 1:35 p.m.

When the nest cavity was examined, the young would hiss and thump the dry rotted wood of the floor with their feet. These antics proved to be largely show, for the birds were not difficult to handle. They were of different sizes, one being noticeably small and weak. At first, June 23, both young were downy white throughout. On June 27, the larger bird was showing black primaries and black feathers over the back. The black primaries appeared on the smaller bird on June 28. Measurements that provided a comparison of size and growth rates of the birds were taken. The length of the right wing from its point of junction with the body to the fleshy tip was recorded for each bird on five occasions. These measurements in millimeters were as follows (those for the larger bird being given first); June 28, 268.7, 218.8; July 2, 325.0, 250.0; July 16, 377.5, 326.0; July 23, 393.8, 362.5; and August 10, 437.6, 375.0. On June 28 the birds were thought to be about one month old.

Palpation of the crops showed that the larger young bird was getting the food on the parent's first trip of the day to the nest. Thus, when only one trip was made, the smaller young bird went unfed.

On August 13 the large young vulture was seen perched in the entrance of the nest cavity, and on August 15 it left the cavity. It was seen several times thereafter in the roosting tree with the adults. As only this one young bird was added to the flock during the season, it is believed that it represented the total production of the group for the season. The adults deserted the smaller young vulture just as soon as the stronger one had flown.

Fifteen samples of crop contents were collected from the young vultures by forced regurgitation. These samples were analyzed by the Section of Food Habits, of the United States Fish and Wildlife Service, and the results are presented in Table 1. The analyses were based on the frequency of appearance of the food items in the samples.

The bulk of the food carried to these young vultures appeared reasonably fresh. This indicated that it had been taken at no great period after the death of the victims. Much of the vertebrate food found in the gullet samples consisted of thoracic viscera; however, all parts of the animals were represented, from skull fragments to claws. This showed that the vultures were at first limited to the softer parts of the prey. Such parts as the eyes and thoracic viscera are fit for eating immediately after the death of the victims; the remaining parts need to be softened somewhat by decomposition. Fly larvae (*Calliphoridae*), which normally accompany carrion, were found in but two samples. Of insects other than the calliphorids, ground beetles (*Harpalus caliginosus*), grasshoppers (*Melanoplus* sp.), and a Cyrtacanthacrinae nymph were identified. These were probably the food of victims.

Forced regurgitation of the gullet contents of the young made it necessary to do some supplementary feeding. As Norway rats (*Rattus norvegicus*) and house mice (*Mus musculus*) were easily procured, they were fed to the young vultures. The house mice were taken entire, but the rats had to be cut into smaller pieces.

TABLE 1. CROP CONTENTS OF VULTURES—JULY TO AUGUST, 1938  
(15 SAMPLES)

Food items	Number of sample in which found	Percent- age of samples in which found
Mole, <i>Scalopus aquaticus</i> .....	1	6.7
Striped skunk, <i>Mephitis mephitis</i> .....	2	13.4
Domestic cat, <i>Felis domestica</i> .....	2	13.4
Meadow mouse, <i>Microtus</i> sp. ....	1	6.7
Ground squirrel, <i>Citellus</i> sp. ....	2	13.4
Cottontail, <i>Sylvilagus floridanus mearnsii</i> (Yng.) .....	1	6.7
Undetermined Leporidae .....	2	13.4
Sheep, <i>Ovis aries</i> .....	1	6.7
Pig, <i>Sus sus</i> .....	1	6.7
Chicken, <i>Gallus gallus</i> .....	8	53.6
Undetermined avian remains .....	3	20.1
Garter snake, <i>Thamnophis r. radix</i> (with many embryos) .....	1	6.7
Insecta .....	5	33.5
Undetermined animal matter .....	3	20.1
Plant debris .....	3	20.1

A few field notes, other than those already mentioned, were made on the food of the adult vultures. A cottontail (*Sylvilagus floridanus mearnsii*) and a striped skunk (*Mephitis m. aria*), victims of highway traffic, were taken. The eyes and the thoracic viscera had been removed by the vultures at the time the remains were found. The highways in that section were not sources of abundant food as traffic was not heavy and the quality of the roads did not permit high speeds.

A month-old calf died on a nearby farm on July 5. The eyes had been removed and an opening made into the thoracic cavity when the carcass was examined the following morning. When inspected again on July 7 there remained only a remnant of flesh and hide on the skeleton. An injured chicken was tethered in an open field near the roost for several days, but no attempt was made by the vultures to attack it.

## BIRDS IN THE HAND

By M. L. JONES

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The reason for the singing of birds has been popularly referred to as an expression of a cheerful attitude. It is very doubtful if this interpretation is a true one in the case of captive wild birds. Most birds are quiet in the collecting cage while waiting for their bands, but some of them repeatedly give their alarm note or just a sharp chip. It is very interesting when one decides to sing. Following are some examples of our experiences.

A Western Meadowlark was trapped on April 4, 1938. While waiting his turn to be banded he clucked and chirped. When he was liberated he flew to the nearest tree, from which he was singing lustily within three minutes by the watch.

A Brown Thrasher captured in May, 1939, sang most of the time while in the collecting cage in the house. Much of his music at this time was just soft twitterings, but many of the phrases were just as he sings them in the open. He even sang a few notes while in my hand as I was banding him.

On May 15, 1939, a Gray-cheeked Thrush chirped in the cage. It was similar to the chirp of an English Sparrow but more musical. While he was in the hand he clucked like a Robin but in a softer tone.

A House Wren was captured on May 15, 1939. He was not much frightened by his experience. Banded birds are released by turning them on their back in the hand and gradually spreading the fingers until the bird realizes he is free and flies. This wren, when he found he was free, leisurely rolled over, sat on my finger and shook himself three times to dry his feathers; after the third flutter he flew away. He had gone into the trap for a bath.

Frequently I have tried to give a banded bird a morsel of food to carry away with him when he leaves, but seldom does he carry it far. In his eagerness to leave he usually drops it. On March 20, 1939, I was showing a Downy Woodpecker to a Junior Audubon Club. I held a nut for him to eat. He pecked at it, although most of his pecking was directed at my fingers. He used his tongue and acted as if eating at times. I placed a piece of walnut in his beak and released him. He managed to carry it until he could get to a tree where he tucked it in the bark and ate it leisurely. He was caught again the next morning and the performance was repeated. He again carried off a large piece of walnut.

A Cardinal banded at Ames, February 25, 1940, was fed walnut meats while in the hand. At first it seemed to divide its attention between trying to secure pieces of my finger and pecking at the nutmeat. Soon, however, it seemed quite obvious that it was directing its pecks at the walnut as a second and even third helping was partially consumed.

Last spring (1939) we were spending a day banding in a weed patch near Twin Lakes (Calhoun County). We had an unusual experience with a Myrtle Warbler. After placing the band the bird was released in the usual manner—by opening my hand, leaving the bird free but on its back. Gradually it was rolled over to a standing position. Most birds fly away quickly, as soon as they balance themselves on their feet, but this warbler remained perched on my finger for some time. I passed it to Mrs. Jones, who held it for some time and then passed it back to me, the bird shifting from one finger to the other. It next flew a few feet, alighting on Mrs. Jones' binoculars. She passed it back again to me. I carried it to a fence post where it perched until pushed off bodily. It then flew two or three feet to a small tree. While perched there it permitted me to touch it but flew to a nearby tree where I tried to retrieve it; but each time it flew a trifle higher than the previous time, and it was finally out of reach.

It is always interesting when releasing a bird to try to "hypnotize" it. This is done by gently stroking the head and throat while the bird is held securely on its back. Some species of birds respond nicely while others seldom or never do.

The Harris's Sparrow is very easily "hypnotized" and may be shifted gently to the ground where it will stay perfectly motionless for as much as five minutes. On one occasion a young man who was helping me brought a Harris's Sparrow to be banded. He took it back to release it at his home two blocks away. A few minutes later he returned and asked me to come and see the sparrow that was still lying on its back on the ground. It seemed impossible that it would remain until we returned so I did not go. Later he told me the bird was still there when he went back to look at it, but it flew a few seconds later. Some might think this dangerous for the bird, but its eyes are not closed and any sudden movement near it warns that it is time to move.

We frequently try this experiment on Blue Jays and find that most of them are extremely jumpy but now and then one will perform perfectly. On February 8, 1940, a jay was banded and "hypnotized"

then gently placed on top of a snow bank. It remained "as still as a mouse" for fully five minutes while I carried large objects past and slammed doors within ten feet of him. Finally I tried placing a finger on its feet and it was away like a flash.

## AUTUMN BIRDS OF AN EASTERN BOB-WHITE EXPERIMENTAL GAME MANAGEMENT AREA IN SOUTHERN IOWA<sup>1</sup>

By EARL SANDERS

During the late summer and autumn of 1936, the writer resided on an Eastern Bob-white Experimental Game Management Area in central-southern Iowa, near the Iowa-Missouri state line. This area consists of 7,713 acres located in High Point and Woodland Townships, Decatur County, and in Clay and Jefferson Townships, Wayne County. The tract, irregular in outline, is approximately six miles long and two miles wide and lies on both sides of Steele's Creek. In topography the area is rolling and cut by many gullies in addition to a number of small valleys. Under normal conditions at least, spring or seepage water is found the year round in several small creeks. Nearly all the numerous lines of erosion are bordered by more or less dense growths ranging from tall herbs and small shrubs to large trees with much underbrush beneath them. For cultivation during the growing season of 1936 the land was divided in the following proportions as listed by percentage: corn, 20; pasture, 18; wheat, 14; timothy, 10; oats, 8; miscellaneous, 3; woodlots, 10; fallow, 10; and abandoned, 7. This diversity of land use and wide dispersion of trees and shrub growth in pastures, meadows, along fences and roadsides offered many inducements to birds.

Detailed observations on wildlife were made August 25-28, September 8-30, throughout October and November, and December 1-14; a total of 102 days, on 88 of which accurate records were kept. The birds were seen with the aid of binoculars around the farmstead where the writer resided, in the fields and while calling on the resident farmers.

Before settlement of the land most of the area was forested. In the upland woodlots and wooded pastures the dominant trees are oaks and hickory, whereas on the lowland the walnuts, elms and willows predominate. The more common shrubs of the area are coral-berry, sumacs, hawthorns, hazelnuts and wild plums. The wild plums and sumacs are found mostly along fence rows, and at the sides and heads of gullies. Coral-berry, hawthorns, and hazelnut are distributed over the area, and are conspicuous in some pastures.

Each farmer agreed to plant at least one food patch of some variety of sorghum. The variety Grohoma, with short stout stalks and large dense seed heads, was planted most frequently. They planted 26 patches and small fields of sorghum ranging in area from one-fourth to eight acres, and most of these were located near natural brushy cover to the advantage of the birds. Under the adverse conditions of drought and the grasshopper epidemic, sorghum was the most successful crop grown, for the grasshoppers attacked the canes only very lightly and it withstood the drought better than other cultivated cereals. Several of the larger fields were cut for forage to supply all that some of the farmers were able to raise. To compensate for this cutting, near the thickets eight feeding stations were built in which sorghum

<sup>1</sup>Journal Paper No. J 479 of the Iowa Agricultural Experiment Station, Ames, Iowa. Project No. 494.

Iowa State College, Iowa State Conservation Commission and the United States Biological Survey co-operating with the American Wildlife Institute.

seed was made available to the birds. A large part of the shocked cane in a five-acre field remained in the field the entire winter. The remaining patches were left standing for wildlife. This was very fortunate for the birds because the supply of weed seeds, usually available for them, was almost a total failure. The ragweeds matured very few seeds. Others such as smart weeds, pigeon grasses and partridge pea matured only a small percentage of seed, and that was inferior in food quality to that produced under normal conditions.

The severe drought and the grasshopper epidemic which prevailed in this section of Iowa resulted in stripping the meadows, pastures, and small grain fields bare of all green succulent vegetation before the last week of August. This barren condition continued until the middle of September when a period of abundant rains and mild temperature began and prevailed until the middle of October. During that time the grasses, herbs, trees, and shrubs put forth new leaves and growth similar to that of spring. The first killing frost occurred on October 23.

The research was under Dr. George O. Hendrickson, Assistant Professor of Wildlife Management, Iowa State College, and Dr. Logan J. Bennett, Associate Biologist, U. S. Biological Survey.

#### ANNOTATED LIST OF BIRDS

Canada Goose. One flock was heard in the late evening of Oct. 13. J. H. Fleming saw a flock of about 50 at 4:00 p.m., the same date.

Mallard. A flock of about 50 was seen Oct. 24, two ducks and a drake were seen on Steele's Creek, Nov. 4.

Blue-winged Teal. One duck was seen on Steele's Creek, Oct. 5.

Turkey Vulture. Seen in the air on 18 days between Aug. 26 and Oct. 18.

Sharp-shinned Hawk. Seen in the air Sept. 12, 19, and 27.

Cooper's Hawk. Seen in the air and on perches on 16 days between Sept. 16 and Nov. 15.

Eastern Red-tailed Hawk. On Oct. 8 a hawk was frightened away from a freshly killed chicken which was about two-thirds grown. On Oct. 16 two hawks were frightened away from a freshly killed adult hen which was still warm. Less than a half hour previously two Red-tailed Hawks had been frightened away from chasing a hen at the same farm.

Northern Red-shouldered Hawk. Seen in the air on seven days between Sept. 15 and Nov. 4.

American Rough-legged Hawk. Seen in the air Oct. 22, 23, and 29.

Marsh Hawk. Seen in the air on seven days between Aug. 28 and Nov. 28.

Eastern Sparrow Hawk. Seen on 10 days between Aug. 28 and Oct. 8. Many were observed to catch and eat grasshoppers.

Eastern Bob-white. The census data gave a density of one bird to 8.3 acres for the entire Game Management Area.

Ring-necked Pheasant. The census data gave a density of one bird to 57.7 acres for the entire Game Management Area.

Sora. Only one was observed, Sept. 9.

Killdeer. Seen on 21 days between Aug. 25 and Nov. 13. A flock of 15 was observed high in the air and flying south on Oct. 13.

American Woodcock. Only one observed, Oct. 29.

Eastern Solitary Sandpiper. Only one observed, Nov. 5.

Mourning Dove. Seen on 29 days between Aug. 25 and Dec. 9. Gradually decreased in numbers Aug. 25 to Oct. 14. A few individuals seen Oct. 18, 22, 29, Nov. 28 and Dec. 9.

Black-billed Cuckoo. Only one was observed, Aug. 26.

Eastern Screech Owl. Heard on 17 nights between Aug. 25 and Dec. 14. Observed only once in daylight, Oct. 28, when one in the brown phase was seen at the mouth of an abandoned southern wood-



chuck burrow. Estimated from the small number of calls heard that very few are located in the area.

Great Horned Owl. Heard on 45 nights between Aug. 26 and Dec. 14. Estimated from the number of calls heard that a large population resides on the area. Very few seen in the daylight.

Eastern Whip-poor-will. Heard on three nights, Aug. 25, 26, and 27.

Eastern Nighthawk. Seen on seven days between Aug. 25 and Sept. 13.

Ruby-throated Hummingbird. One observed in a flower garden Sept. 9 and Oct. 5.

Northern Flicker. Seen on 42 days between Aug. 25 and Nov. 4. Many seen daily until Oct. 23, the date of the first killing frost. Then the numbers lessened until none seen after Nov. 4.

Red-bellied Woodpecker. Seen on 19 days between Sept. 27 and Dec. 10. Few found on the area. On Oct. 27 one was observed to take seed from the head of standing sorghum stalk.

Red-headed Woodpecker. Seen on 21 days between Aug. 25 and Dec. 12. Only two were seen after Oct. 3, on Oct. 23 and Dec. 12.

Yellow-bellied Sapsucker. Seen Sept. 27 and 29.

Eastern Hairy Woodpecker. Numerous on 71 days between Aug. 25 and Dec. 14.

Northern Downy Woodpecker. Seen on 51 days between Aug. 26 and Dec. 14. Not as numerous as the Hairy Woodpecker.

Eastern Kingbird. A small number observed on eight days between Aug. 25 and Oct. 6.

Eastern Phoebe. Seen on 23 days between Aug. 27 and Oct. 19.

Least Flycatcher. Seen on five days between Oct. 5 and 14.

Eastern Wood Pewee. Seen on nine days between Aug. 25 and Oct. 15.

Prairie Horned Lark. Seen on 10 days between Aug. 25 and Dec. 14.

Barn Swallow. Seen on six days between Aug. 25 and Sept. 10.

Northern Blue Jay. Seen on 84 days between Aug. 25 and Dec. 14.

Eastern Crow. Seen on each of the 88 days for which records were kept between Aug. 25 and Dec. 14.

Black-capped Chickadee. Seen on 76 days between Aug. 25 and Dec. 14. Thousands present on the area during the latter part of the period of observation.

Tufted Titmouse. Seen on seven days between Aug. 28 and Dec. 5. Very few observed.

White-breasted Nuthatch. Seen on 80 days between Aug. 25 and Dec. 14. In timber or scattered growths, to be found at almost any time.

Brown Creeper. Only one seen, Oct. 10.

Western House Wren. Seen on 21 days between Aug. 25 and Oct. 15.

Catbird. Seen on 12 days between Aug. 25 and Oct. 4. Very numerous about the sorghum fields and appeared to eat seed from the heads.

Brown Thrasher. Seen on 12 days between Aug. 25 and Oct. 13. Frequented the edges of sorghum fields but did not appear to feed from the heads.

Eastern Robin. Seen on 36 days between Aug. 25 and Nov. 3. Came to the sorghum fields to feed.

Wood Thrush. Only two observed, Sept. 15 and Oct. 5.

Eastern Bluebird. Seen on 50 days between Aug. 25 and Nov. 6.

Migrant Shrike. Seen Aug. 26, 28, Sept. 17 and Nov. 5.

Starling. Seen on 70 days between Aug. 25 and Dec. 14.

Myrtle Warbler. Seen Sept. 16 and 18.

Northern Yellow-throat. Seen on 10 days between Sept. 9 and Oct. 13.

- English Sparrow. Seen daily Aug. 25 to Dec. 14.  
 Eastern Meadowlark. Seen on 51 days between Aug. 25 and Nov. 16.  
 Eastern Red-wing. Seen on 17 days, Sept. 15 to Dec. 9. On Nov. 10, observed an estimated number of 1,000. While present fed in the sorghum fields. Late in the afternoon, Dec. 9, when the ground had been covered with snow for five days, observed a flock of 15 at close range. All had their feathers fluffed and looked as if they were suffering from the cold.  
 Bronzed Grackle. Seen Aug. 26, 28 and Sept. 10.  
 Eastern Cowbird. Seen Aug. 27 and 28.  
 Eastern Cardinal. Seen on 57 days between Aug. 28 and Dec. 14; fed a great deal on the sorghum seeds.  
 Rose-breasted Grosbeak. Seen only once, Sept. 19.  
 Dickcissel. Seen once, Aug. 25.  
 Eastern Goldfinch. Seen on 43 days between Aug. 25 and Nov. 28. Fed extensively on cane and grohoma seed.  
 Red-eyed Towhee. Seen on 15 days between Aug. 25 and Oct. 22.  
 Eastern Vesper Sparrow. Seen on 50 days between Aug. 27 and Dec. 9.  
 Slate-colored Junco. Seen on 56 days between Sept. 27 to Dec. 14. Thousands present on area.  
 Eastern Tree Sparrow. Seen on 33 days between Oct. 9 and Dec. 14. Hundreds present on the area in November and December.  
 Eastern Chipping Sparrow. Seen on nine days between Aug. 25 and Nov. 5.  
 Eastern Field Sparrow. Seen on 45 days between Aug. 25 and Nov. 27.  
 Harris's Sparrow. Seen on 19 days, Oct. 4 to Nov. 15. Present only during migration.  
 White-crowned Sparrow. Seen Oct. 13 and 15.  
 White-throated Sparrow. Seen on 11 days between Oct. 5 and 28. Present only during migration.  
 Eastern Fox Sparrow. Seen on 10 days between Sept. 27 to Nov. 6. Present only during migration.  
 Lincoln's Sparrow. Seen Sept. 16 and Oct. 5.  
 Song Sparrow. Seen on 18 days between Sept. 16 to Nov. 22.

#### SUMMARY

During a period of 88 days between Aug. 25 and Dec. 14, 1936, the writer observed 73 species and subspecies of birds on an Eastern Bob-white Experimental Game Management Area in southern Iowa. Census data gave a density of one Eastern Bob-white to 8.3 acres on the area. Twenty-six patches of sorghum were planted to supply food for wildlife throughout the winter, and where some of the crop was taken as forage by the farmers, feeding stations were built and provisioned with sorghum seed. The severe drought and the grasshopper epidemic greatly reduced the cover and weed seed supply as well as most cereal and forage crops. The sorghum withstood the drought and grasshoppers quite well to produce considerable forage for domestic animals, and cover and food for wildlife. The Eastern Crow, Northern Blue Jay, Northern Flicker, Eastern Hairy Woodpecker, Starling, White-breasted Nuthatch, and English Sparrow were seen on nearly every day. Not so frequently seen but in larger flocks were the Black-capped Chickadee, Eastern Red-wing, Eastern Goldfinch, Slate-colored Junco and Eastern Tree Sparrow. Except for the Great Horned Owl, raptorial birds were not numerous on the area. The Red-bellied Woodpecker, Catbird, Eastern Red-wing, Eastern Cardinal and Eastern Goldfinch were observed to feed at the sorghum patches and that source of food was known to be used by the Eastern Bob-white and the Ring-necked Pheasant.

THE WINTER HABITS OF THE NORTHERN  
PILEATED WOODPECKER IN IOWABy GLENN R. DOWNING  
McGREGOR, IOWA

This investigation into the winter habits of the Northern Pileated Woodpecker (*Ceophloeus pileatus abieticola*) was carried on during the winter of 1939-'40 near Monona, Iowa, in northern Clayton County. These birds first appeared in this vicinity two years ago when a male was sighted on January 16, 1938, and a female in the spring of 1939.

Observations were begun in November, 1939, in a stand of heavy timber of approximately 125 acres. A male and a female Pileated were sighted in the early part of November and no other of these woodpeckers were found in the vicinity. Since the male and female were found together all winter, the writer is led to believe that these birds mate for life. Of this B. H. Christy\* states: "It is usual to find the birds associated in pairs, even after the nesting season has passed; and from this the inference has been drawn (Morrell, 1901; Knight, 1908) that they continue year after year, constantly mated."

The woodland contained many dead trees, logs and decayed stumps, and this abundant dead timber was no doubt the factor which caused the birds to spend the entire winter in the confines of the 125 acres. On only three occasions did the writer observe their leaving this woodland. On November 5, the birds were working outside of the heavy timber at the base of a maple, and when the writer approached they flew off across the fields to another stand of woods perhaps a half mile away. Both birds were sighted in this place on November 17; and on January 6 the female flew to the same place when chased, but was back in the usual woodland with the mate on the next day.

The birds' calls were a loud "ka, ka, ka" note of alarm, variable in speed, and another "puck, puck" call which was uttered while on wing after being flushed from their work. However, the birds did not always call at the writer's approach. On November 11, one of the birds was stalked as it was working on a tree some distance from the timber. As I neared the bird it took wing and silently flew off towards the deep woods.

The birds on occasion warned each other of the approach of danger, an example of which occurred on November 25 when both the male and female were stalked while they were working in a patch of second-growth timber. The female was working on a stump close to the ground and could not discern my approach, but the male, working on a nearby tree, caught sight of me and uttered a loud call, whereupon the female immediately flew to a tree and presently both retreated farther into the woods.

A difference in the calls of the two sexes was noted. B. H. Christy states: "When a pair of birds cackle in alternation . . . a difference in pitch will be noted; but whether that be a constant sexual difference, or a matter of individuality merely, I cannot say" (Bent, 1939). Christy does not state what the difference is, but from the evidence that the writer has gathered throughout the winter months, the female's call is always slightly higher in pitch.

On many instances one bird's call would be answered by the other even when they were a considerable distance apart. On the other hand, one bird would call and the other would pay no attention to it even when they were near each other. One instance of this was observed on February 1, when both birds were sighted working on sepa-

\*Bent, Arthur Cleveland  
1939. Life Histories of North American Woodpeckers; with chapter on the Northern Pileated Woodpecker written by Bayard Henderson Christy, pp. 171-189.

rate trees in the deep timber. The male uttered several characteristic calls and flew onward out of sight at the writer's approach. The female, however, paid no attention but kept on drilling into the wood and, after having apparently secured the objective, flew off in the direction of the male.

The Pileated indulges in drumming as do the other woodpeckers. On January 30, both of the birds were approached while working on separate trees near each other. As the writer came within 30 feet of the birds, which were unusually quiet, both took wing and flew a short distance away to alight on another tree near by. As they flew the noise of their wings beating the air was distinctly audible, and even their grasping of the bark when alighting could be plainly heard. Presently the male gave a loud, reverberating roll on a branch, whereupon both birds took wing and disappeared over the treetops. Again on February 2, at 1:15 p.m., one of the birds drummed for over an hour. On the mornings of February 21 and March 1 the birds were heard drumming again, and on the latter date the sound was audible in town nearly a mile away. Most of the drumming was done in the morning and evening.



TREE STUB SHOWING THE WORK OF THE NORTH-  
ERN PILEATED WOODPECKER  
Photographed by Glenn R. Downing.

The flight of the Pileated is quite slow and usually without the characteristic undulations common to other woodpeckers. An exception is when they are flushed in the timber, when they usually take off in a long bounding flight, sweeping low to the ground and then upward to alight on another tree. At other times the birds would rise and fly above the trees. They would usually alight on the tree below the desired point and work up, and it was in this manner that they made off on the long flights.

The birds are quite wary and it was impossible to get close to them except on a very few occasions. Most of the time they would fly only a short distance away when disturbed, but on several occasions they flew greater distances at the writer's approach.

On January 30, the female Pileated was seen finishing the drilling of the cavities in the roosting tree. Prior to this time the bird was not observed working on the tree although this particular tree was passed many times. The male was never observed near the female's tree and its roosting tree was never discovered. The female's roosting tree was a large basswood (*Tilia americana* L.) and was located about 500 feet from the dense timber, among a few others of the same species and oaks. Two cavities were drilled, one located about 20 feet high facing to the south, and the other to the west and about 5 feet higher. The orifices were not measured, but from the ground they appeared to be about 4 inches in diameter, nearly perfectly circular and drilled through approximately 3 inches of solid wood before reaching the hollow center. No doubt the bird was aware of the decayed center before drilling. Although the tree contained two holes, the lower one was never used by the bird and was probably drilled for the purpose of escape. Of this Vernon Sharpe, Jr., states of the Southern Pileated Woodpecker: "A live hollow tree is selected, and there two or more holes are dug, presumably with the thought of using one for escape should any attack by some night marauder take place" (Bent, 1939, p. 170).

Sixteen field trips were taken to observe the arising and retiring of the female. Dates and time of arising were as follows: Feb. 21, 7:13 a.m.; Feb. 27, 7:02 a.m.; March 1, 6:52 a.m.; March 4, 6:50 a.m. Dates and time of retiring: Feb. 2, between 4:15 and 5:15 p.m.; Feb. 4, flushed from cavity at 5 p.m.; Feb. 13, 4:45 p.m.; Feb. 17, 4:15 p.m.; Feb. 20, 4:25 p.m.; Feb. 27, 4:20 p.m.; March 3, 3:47 p.m.; March 6, 4:45 p.m.

On February 21, the bird arose slightly later than on the other days, and this may have been due to snow falling, as all birds on this morning arose later than usual. The rest of the mornings were either clear or cloudy, but the precipitation perhaps caused the birds to arise later. The female Pileated would appear at the entrance and survey the morning several seconds, then would slip out of the cavity and fly to a nearby tree, uttering a few calls, and then shortly make off on a long flight over the trees to spend the day in the deep timber. This was the usual procedure, and the bird always flew to the same tree, sometimes spending 30 minutes working on it before flying on. One exception occurred on the morning of March 1, when the bird took off into the timber without stopping at this tree.

There did not seem to be any set time at which the female retired, it varying as much as an hour. This was not due to the weather conditions, for on several instances the bird retired later, even though the day was fair and mild.

On March 3 the bird was flushed from the cavity when I rapped loudly on the tree with a stick. The bird immediately slipped from the hole and flew to the usual nearby tree. Instead of standing near the roosting tree, I stepped behind another tree 25 feet away. After a few minutes the bird returned to the roosting tree and immediately

retired to the upper cavity. The usual procedure when I was in sight was for the bird to fly off into the timber and not return that night. Where the bird roosted on such occasions was not discovered. The female apparently deserted the roosting tree on March 10, for that was the last time the bird roosted in it. Where it roosted after that date was never discovered.

A search of the 125-acre winter territory revealed four trees in which were drilled one large hole each where the Pileateds may have retired during severe weather. However, during a snowstorm on January 7, both birds went to work as usual in their search for food. One of the holes was drilled into a white oak (*Quercus alba* L.) and the other three were in dead basswood (*Tilia americana* L.) On March 8 the oak cavity was watched until late evening to see if this might have been used as a roosting place by the male Pileated; and the same procedure was carried on with the three basswoods, but the male was not seen near any of the trees.

The birds' work on the trees, stumps, etc. was very conspicuous in their winter territory. The two birds did not overlook a bit of decayed wood—stumps in the adjacent fields were torn open and fence posts in the vicinity were gouged out and searched carefully for insects. Such heavy work was not noted during the previous summer. B. H. Christy says: "It is a natural surmise that only in winter is such heavy work done, since in summer proper food is more easily available"

Bent, 1939). Much of the work was done on dead stumps and logs, and to several of these the birds had returned again and again, even after the lapse of a year. The birds were never found in cornfields.

In a survey of the 125 acres, the number and species of trees and the types of wood that were utilized by the Woodpeckers in their search for food were noted. The results were as follows: basswood (*Tilia americana* L.): 27 live, 10 dead, 27 stumps, 14 logs, 9 dead limbs; red oak (*Quercus borealis maxima*): 8 live, 7 dead, 12 stumps, 5 logs, 19 dead limbs; white oak (*Quercus alba* L.): 5 live, 1 dead, 1 stump, 6 dead limbs; Am. elm (*Ulmus americana* L.): 4 live, 1 dead; butternut (*Juglans cinerea* L.): 1 live, 5 dead, 1 stump, 2 dead limbs; Kentucky coffee tree (*Gymnocladus dioica* L.): 2 live. It will be seen that the basswood trees and stumps far outnumbered the other species. This does not seem so much a matter of preference of wood, but simply that the trees ranked in this order in abundance. The Pileateds' work would naturally be found more in evidence on the basswoods because these trees were the most common, the other species following in order of their abundance.

Droppings of the Pileateds were collected among the chips at the bases of trees and stumps where the birds had worked. The contents of the droppings were analyzed by the U. S. Bureau of Biological Survey as follows: (1) Collections of December 22, 1939, nearly 100% fragments of the great carpenter ant (*Camponotus herculeanus*) with a trace of a muscid fly (housefly-like) and a mandible of a cerambycid (wood-boring beetle) larva; (2) collections of February 18, 1940, nearly 100% great carpenter ant fragments with a trace of beetle remnants; (3) collections of February 27, 1940, entirely great carpenter ant fragments; (4) collections of March 8, 1940, remains of at least 13 great carpenter ants; and (5) collections of April 9, 1940, 92% finely ground great carpenter ant fragments and 8% wood fragments.

Lack of space prevents our using notes from Ivan Boyd, Mrs. R. W. Johnson, Glenn Downing, O. P. Allert and Mrs. F. L. Battell in this issue. For the same reason the annual membership roll is omitted. Since the five-year index will no doubt occupy the entire December issue, this material will necessarily be deferred until 1941.—Ed.

THE PILEATED WOODPECKER IN NORTHEAST  
IOWABy ELLISON ORR  
WAUKON, IOWA

The Northern Pileated Woodpecker (*Ceophloeus pileatus abieticola*) is not a common bird in any locality. The nature of its food is such that it must range over a considerable territory to get a sufficient amount to sustain life. But notwithstanding the fact that much of its timber habitat has been cleared away, it appears to be holding its own. A wild, shy bird of long flights from tree to tree, it is not often seen, and rarely shot, and probably does not suffer greatly from predators.

I have often noted the nesting holes of this woodpecker in the timber of northeastern Iowa. One nesting tree, in which there were three nest cavities, was a large dead white elm at the foot of the low bluffs along the Upper Iowa River near the center of Section 7, T. 98, R. 7, Glenwood Township, Winneshiek County, Iowa, and only a few rods from that stream. Back of it on the north slope of the hills was a scattering growth of stunted oak trees with poplar and white pine. Of the three entrances the lower two, respectively 20 and 30 feet from the ground, were 4 inches in diameter as near as we could estimate from inspection—we had no means of climbing up to them. The upper one, 10 feet above the second one, appeared to be much older than the others and its diameter was as much as 5 inches or more. From the ground it looked as if it might have been enlarged by squirrels.

WORK OF THE PILEATED WOODPECKER ON A  
BLACK CHERRY TREE

At different times in other timber along the Upper Iowa, the Yellow, and the Mississippi Rivers, at heights of from 20 to 70 feet and always in dead trees, I have seen the nest holes of this bird. Often there are

two holes in the same tree. Years ago I found an occupied nest in one of a "patch" of the large-toothed aspen (*Populus grandidentata*) at 20 feet from the ground. The cavity was irregularly cylindrical with an approximate diameter of 8 inches and a depth of 18 inches. The entrance had a diameter of 4 inches. It contained four eggs on a bed of fine chips.

The accompanying photograph shows the work of this bird on a black cherry 8 inches in diameter. It was taken in the early spring of 1940, but the work was apparently done about a year before. The funnel-shaped pits of approximately 5 inches vertical and 4 inches horizontal diameter at the outside of the tree, had a depth of 5 inches into and through that part of the center which was honey-combed by the chambers and galleries of the carpenter ant. This insect works in the "brash" heart wood of the tree. It is one of the principal items in the Pileated Woodpecker's bill of fare, and he drills through the sound, hard, newer outside growth to reach it.

Trees showing the work of this bird are very common in certain localities; the different species of oaks and the black cherry are the ones I have noticed most often. Surrounding the Catholic church two miles west of Harpers Ferry is a windbreak of Norway spruce. In one of these trees that had died a Pileated Woodpecker had drilled a pit 7 inches deep to reach the ants.

## NESTING OF THE PIPING PLOVER IN IOWA

By BRUCE F. STILES

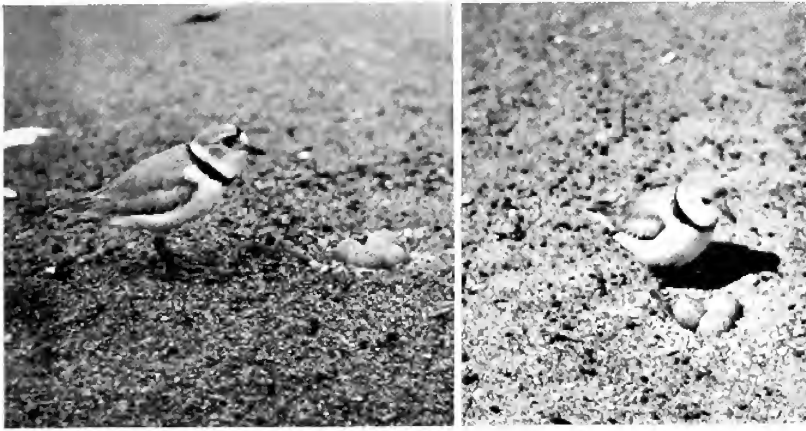
State Conservation Officer  
Council Bluffs, Iowa

Some years ago while I was on the Missouri river with Dr. T. C. Stephens, he pointed out the Piping Plover (*Charadrius melodus*) and said he believed that it nested in Iowa. My interest in the bird began at that time, and I formed the desire to find its nest. Although I saw it each summer on the white sand beaches and heard its melodious call, I was never fortunate enough to find its nest until June 7, 1940, when I discovered it nesting on a sand-spit that extended far out into Lake Manawa in Lewis Township, Pottawattamie County, Iowa. This nest contained four eggs. On June 18 I found another nest with three eggs, and on June 25 I found three very tiny young. The greatest number of adult birds I saw on the bar at any time was five, although there may have been three pairs.

The American Ornithologists' Union's 'Check-List of North American Birds' gives central Nebraska and northeastern Illinois as a part of its breeding range although Iowa is not included. Philip A. DuMont, in 'A Revised List of the Birds of Iowa', lists it as "a rare migrant and a casual summer resident." He further states: "William Youngworth found this species breeding three miles west of Sioux City in South Dakota, during 1932. The evidence of its former breeding in the state is negligible. Cooke (1888) stated that it was reported as breeding at Grinnell. The only Iowa specimen is a male in the University of Iowa museum, taken at Burlington, Des Moines County, August 27, 1893, by Paul Bartsch."

Herbert K. Job's interesting account of the Piping Plover in T. Gilbert Pearson's 'Birds of America' describes the young as resembling little bunches of cotton batting blowing over the sand. It is here stated in the description of the bird that the black band tends to encircle the neck but does not meet. The color plate by Major Allan Brooks in 'The Book of Birds' (published by the National Geographic Society) does not show this black band as completely encircling the neck. Dr. Thomas S. Roberts in his key to 'The Birds of Minnesota'





PIPING PLOVERS AT NESTS

The bird at the left stands beside a nest with four eggs, found on June 7, 1940. The nest at the right contains three eggs and was found on June 18, 1940. Both photographs were taken in Pottawattamie County, Iowa, by Bruce F. Stiles.

quotes Bent as saying that the extent of the black collar increases with age, a complete collar probably indicating an old bird.

On all the adult birds seen at this location the black band completely encircled the neck, although it was slightly more pronounced on some individuals than on others. Some authors state that the eggs are laid in the clear sand. In both cases the eggs found on this bar were laid in clearly defined nests made entirely of small pebbles.

The nesting birds were unafraid and when the eggs or young were approached their show of feigning injury was an art. When not followed they would repeat the performance time after time. This failing, they returned with tail spread out like a fan and, with wings partially extended, they would rush at my hand when it was held near the nest. They came within six inches of my hand and one allowed me to touch it with a small stick. I have never seen a finer exhibition of defending a nest, although their heaving sides and plaintive calls belied their actions of bravery.

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## GENERAL NOTES

**Nesting of the King Rail in Pottawattamie County.**—So far as I know, there is no nesting record of the King Rail for Pottawattamie County, Iowa. The fourth edition of the A. O. U. 'Check-List' gives its breeding range as follows: "From Nebraska, southern Minnesota, southwestern Ontario, New York, and Massachusetts south to Florida, Louisiana, and Texas, and west to Kansas." DuMont (1933) says: "The King Rail has become greatly reduced as a breeder in Iowa during the past two decades . . . . This species is unreported by some observers and considered as quite rare by others. However, Spurrell (1917) recorded it as a common breeder in Sac County."

On May 19, 1939, I saw a King Rail at a small pond at the north end of Lake Manawa in Pottawattamie County. It was taking a bath in the shallows behind a clump of cat-tails and did not notice my presence until I had approached within six or seven yards. Its actions were much like one of our song birds in a bird-bath. I saw it again in the same locality on May 22, and three times during June. On the last occasion (June 11) I saw two.

From its actions I decided that it must be nesting, and I planned to find the nest, if possible. On June 6 I drove to the area to look for the nest but found that the W. P. A. had been there before me. The entire area of cat-tails had been cut the day previous, destroying valuable bird cover and many nests of swamp birds. I found the nest, which contained two eggs. The bird abandoned it. The nest and eggs in the fallen cat-tails are shown in the accompanying photograph.—BRUCE F. STILES, Council Bluffs, Iowa.



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—F. J. P.

### RECENT BIRD BOOKS

LIFE HISTORIES OF NORTH AMERICAN CUCKOOS, GOATSUCKERS, HUMMINGBIRDS AND THEIR ALLIES, by Arthur Cleveland Bent (*U. S. Natl. Mus. Bull.* 176, 1940; wrappers, pp. i-viii + 1-506, with 73 halftone pls.; for sale by Supt. of Documents, Wash., D. C., price 75c).

This is the thirteenth volume in a series that is easily the most important and complete of any work on North American birds, past or present. It represents the culmination of a lifetime of careful study by the author. The writing and research necessary for this work is an enormous undertaking, but Mr. Bent has made steady progress. The first volume, on the Diving Birds, was published in 1919. The average has thus been a new volume added to the series about every 20 months. Following the old A. O. U. 'Check-List' order, the author has brought the work up to and including the Hummingbirds. This leaves only the Passeres, or Perching Birds, to complete the series. Some of the families in this order contain a great many species, so numerous volumes will be forthcoming. However, Mr. Bent's task must be well over half completed.

The demand for the books evidently was not foreseen by the publishers. The supply of the first volume was woefully inadequate, and it is now a much-sought-after book. The other volumes are less scarce, but they have all gone out of print a short time after publication. Unlike commercial ventures, where demand brings out second and successive editions as fast as they are needed, the Smithsonian publications are seldom, if ever, reprinted. To date, the bound set of the 'Life Histories' on the reviewer's shelf is 17 inches long. Like Doctor Elliot's 'Five-foot Shelf' of the Harvard Classics, Mr. Bent's classics will be the Five-foot Shelf of American Ornithology—paralleling the other famous set in quality and completeness, if not in actual breadth in inches.

The arrangement of material in the present volume follows that of the others. The author draws from his own voluminous notes to write of the habits of American birds. His personal experiences cover many years of active field work, and he writes from first-hand observation in a clear, readable style that is always interesting and informative. Possessed of much descriptive skill, he reaches genuine literary heights in many of his paragraphs. Not limited to his own bird studies, Mr. Bent has had access to the field notes of all serious ornithological workers in America. In addition he has searched the literature care-

fully to glean important descriptive accounts from the writings of others. Each species is fully described under these sub-heads: Habits, courtship, nesting, eggs, young, plumages, food, behavior, voice, enemies, range and migration. A number of ornithologists have been called upon to write the chapters on certain birds, when Mr. Bent felt they were better qualified to do this than he. The sections on range and migration have been compiled by Frederick C. Lincoln, using the Biological Survey's files for this purpose. However, most of the writing has been done by Mr. Bent. The books are illustrated by selections from the work of foremost bird photographers, and are replete with hundreds of excellent halftones showing nests, eggs, young, and adult birds in various attitudes. The first two volumes included colored plates of eggs, but this feature was abandoned because of the expense involved.—F. J. P.

#### MEMBERSHIP NEWS

Mating activities among our members have been progressing steadily in recent months. Our former Secretary-Treasurer, Miss Kate LaMar, and Noah J. Blosser were married at Des Moines on June 9. Miss Mary E. Roberts and Jack Musgrove were married at Spirit Lake on June 10. Miss Minnie M. Bailey and Harvey L. Nichols were married at Fairfield on June 23. Miss Leona Keckler and Wilfred Crabb were married on August 9. Congratulations to all.

Emmett Polderboer, summer naturalist at the Backbone State Park, accepted a position with the U. S. Census Bureau and began work at Washington, D. C., early in August.

The American Institute of Nature Studies (formerly the Wild Life School) held its 22nd annual session at McGregor, August 4 to 16. Several of our members appeared on the program on various days—Walter Rosene, Mrs. W. G. MacMartin, Jack Musgrove, Ellison Orr and M. L. Jones. A feature of August 5 was the river trip on the excursion steamer "President".

**VACATION TRIPS.** Mrs. W. G. MacMartin returned recently from an extended trip to South America. Dr. and Mrs. T. C. Stephens visited New York City and eastern points during August. Mrs. R. W. Johnson and son visited Estes Park and Colorado Springs, Colorado, in June; they saw 27 new birds on this trip, 14 of which were additions to their Life List. In August Mr. and Mrs. Johnson went on an eastern trip, visiting Schenectady, New York City, Washington, D. C., and other places. Miss Margaret Kohlman enjoyed a 16-day special bus trip to Mexico in the late summer. Rev. M. C. Melcher and family visited the Black Hills of South Dakota during August.

On an eastern trip during August Editor Pierce and family passed through 15 states and visited numerous points from Bennington, Vermont, to Washington, D. C., including New York City. A number of places of ornithological interest were included in the trip. Two days were spent with Chas. J. Spiker, at Branchport in the Finger Lakes section of New York. Mr. Spiker was one of the founders of our organization is well known to the older members of the Union. At Roxbury, in New York's Catskill region, the boyhood farm and burial place of John Burroughs were visited. At Salem, New York, some time was spent with Florence Audubon who is a granddaughter and the last living descendant of John James Audubon in America. Among the scenes at the historic old town of Concord, Massachusetts, the site of Henry David Thoreau's hut on Walden Pond and his grave in Sleepy Hollow Cemetery were most interesting.

Mr. and Mrs. Wm. Youngworth spent their vacation studying birds and climbing mountains in the high Rockies near Denver, Colorado, in August.